

WHAT IS CLAIMED IS:

Claim 1. A configuration unit for a centrally controlled power distribution system, comprising:

    a non-volatile memory device permanently secured within a switchgear cubicle, said switchgear cubicle being configured to replaceably receive a circuit breaker and to removably receive a module; and

    means for placing said non-volatile memory device in communication with said module when said module is removably received in said switchgear cubicle.

Claim 2. The configuration unit as in claim 1, further comprising configuration data resident on said non-volatile memory device.

Claim 3. The configuration unit as in claim 2, wherein said configuration data comprises data selected from the group consisting of physical characteristics of a circuit, protection algorithms for said circuit, a network addressing means of said module, and any combinations thereof.

Claim 4. The configuration unit as in claim 1, wherein said means for placing said non-volatile memory device in communication with said module comprises a conduit connecting said non-volatile memory device with said module.

Claim 5. The configuration unit as in claim 1, wherein said means for placing said non-volatile memory device in communication with said module comprises a set of interconnecting plugs disposed on said module and said non-volatile memory device.

Claim 6. The configuration unit as in claim 5, wherein said set of interconnecting plugs connect being connected when said module is removably received in said switchgear cubicle.

Claim 7. A protection system for a power distribution system, comprising:

a central computer;

a first switchgear cubicle having a first non-volatile memory device permanently secured therein, said first non-volatile memory device having first configuration data resident thereon;

a first data module in communication with a first circuit breaker of the power distribution system, said first data module being removably received in said first switchgear cubicle and said first circuit breaker being replaceably received in said first switchgear cubicle, said first data module being in communication with said first non-volatile memory device so that said first data module is configured by said first configuration data; and

a data network communicating between said central computer and said first data module so that said processing unit performs primary power distribution functions for the power distribution system.

Claim 8. The protection system as in claim 7, wherein said first configuration data comprises data selected from the group consisting of physical characteristics of said first circuit breaker, protection algorithms for said first circuit breaker, a network address of said first data module, and any combinations thereof.

Claim 9. The protection system as in claim 7, further comprising:

a second switchgear cubicle having a second non-volatile memory device permanently secured therein, said second non-volatile memory device having second configuration data resident thereon; and

a second data module in communication with a second circuit breaker of the power distribution system, said second data module being removably received in said second switchgear cubicle and said second circuit breaker being replaceably received in said second switchgear cubicle, said second data module being in communication with said second non-volatile memory device so that said second data module is configured by said second configuration data,

wherein said data network communicates between said central computer and said first and second data modules so that said processing unit performs primary power distribution functions for the power distribution system.

Claim 10. The protection system as in claim 9, wherein said second configuration data comprises data selected from the group consisting of physical characteristics of said second circuit breaker, protection algorithms for said second circuit breaker, a network address of said second data module, and any combinations thereof.

Claim 11. The protection system as in claim 7, further comprising a conduit placing said first non-volatile memory device with said first data module.

Claim 12. The protection system as in claim 7, further comprising a set of interconnecting plugs placing said first non-volatile memory device with said first data module when said first data module is removably received in said first switchgear cubicle.

Claim 13. A method of configuring components of a centrally controlled power distribution system, comprising:

causing a data module to read configuration data from a configuration unit, said configuration unit being permanently attached to a switchgear cubicle and said data module being removably received in said switchgear cubicle; and

creating a working copy of said configuration data in said data module.

Claim 14. The method as in claim 13, wherein said data module reads said configuration data from said configuration unit each time said data module is initialized.

Claim 15. The method as in claim 13, further comprising causing said data module to define a module parameter based on said configuration data.

Claim 16. The method as in claim 15, wherein said module parameter comprises a parameter selected from the group consisting of an instantaneous over current parameter, a short time over current parameter, a long time over current parameter, a ground fault parameter, an Ethernet parameter, a communication bus parameter, and any combinations thereof.

Claim 17. The method as in claim 13, further comprising validating said working copy.

Claim 18. The method as in claim 17, wherein said validation comprises verifying that a block of data read from said configuration unit is of the same size as a block of data that was received by said data module.

Claim 19. The method as in claim 17, wherein said validation comprises verifying that a plurality of values in said working copy are within a pre-programmed range resident on said data module.

Claim 20. The method as in claim 19, wherein said pre-programmed range is independent or dependent of said working copy.

Claim 21. The method as in claim 17, further comprising reading default values from said data module if said working copy is not validated.

Claim 22. The method as in claim 17, further comprising sending an error message from said data module if said working copy is not validated.

Claim 23. The method as in claim 13, further comprising

creating an updated configuration data in said data module;

writing said updated configuration data to said working copy;

sending said working copy to said configuration unit such that said configuration data is updated by said updated configuration data.

Claim 24. The method as in claim 23, further comprising validating that said configuration data is updated by said updated configuration data.

Claim 25. The method as in claim 23, wherein said updated configuration data is created in a computer in electrical communication with said data module.